

Application No.: 10/628,305  
Docket No. K06-159567M/TBS

### **REMARKS**

A Petition for One Month Extension of Time and Fee for \$120.00 is submitted herewith.

Claims 1-5 are presently pending in this application. Claim 2 has been amended to more particularly define the claimed invention. Claim 5 has been added to claim additional features of the claimed invention. Claims 1 and 3-4 have been previously withdrawn from examination.

It is noted that the amendments are made only to more particularly define the invention and not for distinguishing the invention over the prior art, for narrowing the scope of the claims, or for any reason related to a statutory requirement for patentability. It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Claim 2 stands rejected under 35 U.S.C. §102(b) as being unpatentable over Goto, EP 1099869 A2.

Claim 2 stands rejected under 35 U.S.C. §102(e) as being unpatentable over Goto, U.S. Pat. No. 6,537,390.

These rejections are respectfully traversed in view of the following discussion.

#### **I. APPLICANT'S CLAIMED INVENTION**

The claimed invention (as defined, for example, by independent claim 2) is directed to a roller member including a high carbon chromium bearing steel and having a

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carburization treatment, the bearing steel including a surface portion defined as a range between a surface of a rolling face of the rolling member to a depth where a maximum shearing stress acts thereon, the surface portion containing carbon in a total amount including a range of 1.0 to 1.6 wt% and an amount of residual austenite including a range of 20 to 35 vol%, and compression residual stress of the surface portion includes a range of 150 to 1000 MPa. Furthermore, a surface hardness of the surface portion includes a range of 64 or higher in Rockwell C hardness, and an amount of carbide precipitate on the surface portion includes a range of 10 to 25% in an area rate and each carbide particle size includes a range of 3  $\mu\text{m}$  or less.

Conventionally, as a raw material, case hardened steel is not mass-produced, and material costs are high. As a result, heat treating costs for the carburization treatment or carbonitriding treatment of case hardened steel are expensive, and therefore a problem to the total production cost of the roller cam follower. (Application at page 2, lines 15-21.)

The claimed invention (e.g., as recited in claim 2), on the other hand, includes a roller member includes high carbon chromium bearing steel and having a carburization treatment, wherein an amount of residual austenite comprising a range of 20 to 35 vol% provides for proper hardness under severe wear conditions. (Specification at page 2, lines 8-12, and page 7, lines 3-13.)

## **II. THE ALLEGED PRIOR ART REJECTIONS**

### **A. 35 U.S.C. § 102(b) Rejection over Goto, EP 1099869 A2**

The Examiner alleges that Goto, EP 1099869 A2, (Goto '869), teaches the invention of claim 2. Applicant submits, however, that Goto '869 fails to teach

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Applicant's claimed invention including *a roller member including high carbon chromium bearing steel having a carburization treatment.*

Goto '869 teaches a low carbon steel at less than 0.3 wt% carbon, rather than a bearing steel having greater than 1.0 wt% carbon:

"The steel material serving as the blank material for the antifriction bearing of the present invention should be limited to 0.15 to 0.3 wt. % in carbon content....", at paragraph [0008].

The steel material in Goto is case hardening steel and has an amount of carbon that falls into a range of 0.15 to 0.30 wt %. According to the present invention, a high carbon chromium steel may be used as a base material. High carbon chromium steel may contain 0.95 to 1.10 wt % of carbon.

As described in the "Background of the Invention" of the Specification, the case hardening steel is not mass-produced, and consequently the cost is high to produce it. Thus, the present invention aims to provide a roller member having a long life, and may include as a base material high carbon chromium steel (e.g., including JIS SUJ2) that is mass-produced and is low cost.

Additionally, Goto '869 fails to teach Applicant's claimed invention including *a roller member which includes an amount of residual austenite comprising a range of 20 to 35 vol%.* Goto '869 teaches a range of austenite content in a second embodiment of the invention being between a range of 25 to 45%, (see paragraph [0010]), but the second embodiment fails to teach or suggest each and every claimed element and feature, specifically, Applicant's carbon content comprising a range of 1.0 to 1.6 wt%, a Rockwell C hardness of 64 or higher, and a carbide precipitate between 10 to 25% area ratio.

Therefore, Applicant respectfully requests Examiner to reconsider and withdraw

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this rejection since the alleged prior art reference fails to teach or suggest each and every element and feature of Applicant's claimed invention.

**B. 35 U.S.C. § 102(e) Rejection over Goto, U.S. Pat. No. 6,537,390**

The Examiner alleges that Goto, U.S. Pat. No. 6,537,390, (Goto '390), teaches the invention of claim 2.

Goto '390, a U.S. Patent claiming priority to the same Japanese Publication as Goto '869, teaches the same subject matter as Goto '869, and thus is subject to the same arguments as presented above.

Therefore, Applicant respectfully requests Examiner to reconsider and withdraw this rejection since the alleged prior art reference fails to teach or suggest each and every element and feature of Applicant's claimed invention.

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### III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 2 and 5, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Date: May 19, 2006

Respectfully Submitted,

Donald J. Lecher

Donald J. Lecher, Esq.

Reg. No. 41,933

Sean M. McGinn, Esq.

Reg. No. 34,386

**McGinn Intellectual Property Law Group, PLLC**  
8321 Old Courthouse Rd., Suite 200  
Vienna, Virginia 22182  
(703) 761-4100  
Customer No. 21254

#### CERTIFICATE OF TRANSMISSION

I certify that I transmitted via facsimile to (571) 273-8300 the enclosed Amendment under 37 C.F.R. § 1.111 to Examiner AFZALI, Art Unit 3729, on May 19, 2006.

Donald J. Lecher

Donald J. Lecher, Esq.

Registration No. 41,933

Sean M. McGinn, Esq.

Registration No. 34,386